

REMARKS

Claims 1 through 11 and 15 have been canceled. Claims 12, 19, and 20 have been amended. New claims 21 through 32 have been added. Claims 12 through 14 and 16 through 32 remain in the application. A marked up copy of the amended claims are attached hereto as Appendix A.

In the previous Office Action, claims 1 and 2 were rejected under 35 U.S.C. § 103 as being unpatentable over Sutherland (U.S. Patent No. 6,123,355) in view of Suyama et al. (U.S. Patent No. 5,575,497). Claims 1 and 2 have been canceled and the rejection as to these claims is moot.

In the previous Office Action regarding the present application, the Examiner applied two cited references, Sutherland (U.S. Patent No. 6,123,355) and Suyama et al. (U.S. Patent No. 5,575,497). Applicants will now discuss these two references.

U.S. Patent No. 6,123,355 to Sutherland discloses a vehicle occupant safety apparatus. The safety apparatus 10 includes first and second inflators 14 and 16 and first and second inflatable vehicle occupant protection devices in the form of a window air bag or side curtain 20 and a headliner air bag 22. The inflators 14 and 16 and the air bags 20 and 22 are mounted as a module 60 in the vehicle 12. The module 60 or portions thereof including the inflators 14 and 16 may alternatively be mounted near the front of the vehicle 12 on or near the A-pillar or at another location on the vehicle. Sutherland discloses side curtain and headliner airbags and does not disclose a frontal air bag adapted for mounting solely to a pillar of a vehicle to deploy downward and sideways in front of an occupant seated in the vehicle when inflated.

U.S. Patent No. 5,575,497 to Suyama et al. discloses a method for developing an air bag for a vehicle. An airbag device A_D for a driver's seat S_D and an airbag device A_N for

passenger's seat S_N are disposed in a vehicle laterally symmetrically with each other with respect to a center line of a vehicle body and have substantially the same structure. Each of the air bag devices A_D and A_N includes an inflator I mounted in an outer portion of a seat back S_1 of each of the driver's seat S_D and the passenger seat S_N for injecting a high pressure gas, a first air bag B_S which is inflated and developed along an inner surface of a side door D by the high pressure gas from the inflator I , and a second air bag B_F which is integrally coupled to the first air bag B_S and inflated and developed along a rear surface of an instrument panel P . The first and second air bags B_S and B_F are formed separately and united integrally by stitching, and are mounted in their compact folded states in the outer portions of the seat backs S_1 along with the inflators. As can be seen by reference also to FIG. 2, two pressure valves V , V are mounted at a joint between the first and second air bags B_S and B_F united integrally by a stitching 1. Each of the pressure valves V is a circular opening 2 defined in the first and second air bags B_S and B_F superposed on each other, and a membrane 4 placed to cover the opening 2 and fixed by a stitching 3. When the membrane 4 is in a state shown by a dashed line in FIG. 2, it air-tightly partitions an internal space in the first air bag B_S and an internal space in the second air bag B_F from each other. When the internal pressure in the first air bag B_S is increased to exceed a predetermined value, the membrane 4 is broken into a state shown by a solid line in FIG. 2 to put the internal space in the first air bag B_S into communication with the internal space in the second air bag B_F . In FIGS. 7C to 7G, each of the inflators I , I_S and I_F is mounted in the roof in place of mounting in the seat back S_1 . Suyama et al. '497 discloses an air bag, which appears to be an extension of a side air bag, which probably is above the window, of a vehicle and does not disclose a frontal air bag adapted to be mounted solely to a pillar of a vehicle to deploy downward and sideways in front of an occupant seated in the vehicle when inflated.

In contradistinction, new claim 21 claims the present invention as a frontal air bag system for a vehicle including a frontal air bag adapted to be mounted solely to a pillar of the vehicle. The frontal air bag is inflated to extend downward and sideways in front of an occupant seated in the vehicle.

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 21. Specifically, Sutherland '355 merely discloses a vehicle occupant safety apparatus having an air bag module or portions thereof including the inflators mounted near the front of the vehicle on or near the A-pillar or at another location on the vehicle. In Sutherland '355, the air bags are side curtain air bags and headliner air bags and not frontal air bags as incorrectly stated by the Examiner. In addition, Sutherland '355 lacks a trim molding covering an air bag and mounted to a pillar or how to deploy a frontal air bag downward and sideways in front of an occupant seated in the vehicle when inflated. Suyama et al. '497 merely discloses a method for developing an air bag for a vehicle in which an air bag is stored in a seat back having a first air bag inflated upwardly along a side door and a second air bag coupled to the first air bag inflated upwardly along a rear surface of an instrument panel. In Suyama et. al. '497, the air bags appear to be an extension of a side air bag, which may be deployed from the roof, probably above the window of the vehicle. Suyama et al. '497 does not suggest how to deploy a frontal air bag from the A-pillar downward and sideways in front of an occupant seated in the vehicle when inflated. The references, if combinable, fail to teach or suggest the combination of a frontal air bag system including a frontal air bag adapted for mounting solely to a pillar of a vehicle to deploy downward and sideways in front of an occupant seated in the vehicle when inflated as claimed by Applicants. The claimed combination is novel and unobvious because the combined references do not teach or suggest how to deploy a frontal

air bag from the A-pillar. Therefore, it is respectfully submitted that claims 21 and the claims dependent therefrom are allowable over the art of record.

In the previous Office Action, claims 4 and 6 through 17 were rejected under 35 U.S.C. § 103 as being unpatentable over Sutherland '355 in view of Suyama et al. '497 and further in view of Yamada (U.S. Patent No. 5,884,937). Applicants respectfully traverse this rejection.

U.S. Patent No. 5,884,937 to Yamada discloses an air bag device. An air bag device includes an inflator 16 disposed within an instrument panel 14, which is positioned substantially in front of a driver's seat 12 of a vehicle 10. The inflator 16 is connected to an air bag body 20 via a gas-guiding pipe 18. The air bag body 20 covers substantially the upper half of a front side window 22. A front pillar mounting portion 20A of the air bag body 20 is fixed to a vehicle inner side portion 26A of a front pillar 26 of the vehicle 10 by fixing members 29 such as bolts or the like. A roof side rail mounting portion 20B of the air bag body 20 is fixed to a vehicle inner side portion 28A of a roof side rail 28 by the fixing members 29. The fixing members 29 are inserted into mounting holes 31 which are formed at predetermined intervals in the front pillar mounting portion 20A and the roof side rail mounting portion 20B. The air bag body 20 is accommodated in the housing 30 in a folded state. The housing 30 extends along the front pillar and the roof side rail 28 and includes a lid 30A and a base 30B. Yamada does not disclose an air bag operatively connected to an inflator and mounted solely to a pillar of a vehicle to extend downward and sideways in front of an occupant seated in the vehicle when inflated. Yamada et al. '937 discloses a side curtain air bag and does not disclose a trim molding covering a frontal air bag and mounted to a pillar or a frontal air bag to deploy downward and sideways in front of an occupant seated in the vehicle when inflated.

In contradistinction, claim 12 claims the present invention as a frontal air bag system for a vehicle including an inflator adapted to be mounted to vehicle structure and a diffuser connected to the inflator and adapted to extend along a pillar of the vehicle. The frontal air bag system also includes a frontal air bag operatively connected to the diffuser and adapted to be mounted solely to the pillar. The frontal air bag system further includes a trim molding covering the frontal air bag and adapted to be mounted to the pillar. The frontal air bag is inflated by the inflator via the diffuser to extend downward and sideways in front of an occupant seated in the vehicle and the trim molding is displaced during deployment of the frontal air bag.

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 12. Specifically, Sutherland '355 merely discloses a vehicle occupant safety apparatus having an air bag module or portions thereof including the inflators mounted near the front of the vehicle on or near the A-pillar or at another location on the vehicle. In Sutherland '355, the air bags are side curtain air bags and headliner air bags and not frontal air bags as incorrectly stated by the Examiner. In addition, Sutherland '355 lacks a trim molding covering a frontal air bag and mounted to a pillar in which the trim molding is displaced during deployment of the frontal air bag. Suyama et al. '497 merely discloses a method for developing an air bag for a vehicle in which an air bag is stored in a seat back having a first air bag inflated upwardly along a side door and a second air bag coupled to the first air bag inflated upwardly along a rear surface of an instrument panel. In Suyama et. al. '497, the air bags appear to be an extension of a side air bag, which may be deployed from the roof, probably above the window of the vehicle. Suyama et al. '497 also lacks a trim molding covering a frontal air bag and mounted to a pillar, which is displaced during deployment of the frontal air bag. Yamada et al. '937 merely discloses an air bag device having a front pillar mounting portion of an air bag

fixed to a vehicle inner side portion of a front pillar and a roof side rail mounting portion of the air bag body fixed to a vehicle inner side portion of a roof side rail. In Yamada et al. '937, the air bag is a side curtain air bag and does not teach how to deploy a frontal air bag from the A-pillar. Yamada et al. '937 lacks a trim molding covering a frontal air bag and mounted to a pillar, which is displaced during deployment of the frontal air bag. The references, if combinable, fail to teach or suggest the combination of a frontal air bag system including a frontal air bag operatively connected to an inflator and mounted solely to a pillar of a vehicle, a trim molding covering the frontal air bag and mounted to the pillar, and the frontal air bag inflated by the inflator to extend downward and sideways in front of an occupant seated in the vehicle and the trim molding is displaced during deployment of the frontal air bag as claimed by Applicants. The claimed combination is novel and unobvious because the combined references still do not teach how to deploy a frontal air bag from the A-pillar. Therefore, it is respectfully submitted that claim 12 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

In the previous Office Action, claims 3, 18, and 19 were rejected under 35 U.S.C. § 103 as being unpatentable over Sutherland '355 as modified by Suyama et al. '497 and Yamada '937 and further in view of Wipasuramonton et al. (U.S. Patent No. 5,615,909). Claim 3 has been canceled and the rejection as to this claim is moot. Applicants respectfully traverse the rejection as it applies to claims 18 and 19 for the same reasons given above to claim 12.

In the previous Office Action, claim 5 was rejected under 35 U.S.C. § 103 as being unpatentable over Sutherland '355 as modified by Suyama et al. '497 and Yamada '937, and further in view of Boerger (U.S. Patent No. 6,050,596). Claim 5 has been canceled and the rejection as to this claim is moot.

In the previous Office Action, claim 20 was rejected under 35 U.S.C. § 103 as being unpatentable over Sutherland '355 in view of Suyama et al. '497, Yamada '937, and further in view of Wipasuramonton et al. (U.S. Patent No. 5,615,909). Applicants respectfully traverse this rejection.

U.S. Patent No. 5,615,909 to Wipasuramonton et al. discloses a vehicle safety apparatus. An air bag 90 is formed from two separate fabric material panels, that is, an outer panel 150 and inner panel 152. The panels 150 and 152 are sewn together to form the air bag 90 including a neck portion 130 and a body portion 140. Wipasuramonton et al. discloses a side air bag and does not disclose a trim molding covering a frontal air bag and mounted to a pillar or a frontal air bag to deploy downward and sideways in front of an occupant seated in the vehicle when inflated.

In contradistinction, claim 20 claims the present invention claimed as a frontal air bag system for a vehicle including an inflator adapted to be remotely mounted to vehicle structure and a diffuser adapted to be connected to the inflator and adapted to extend along a pillar of the vehicle. The frontal air bag system also includes a frontal air bag mounted solely to the pillar and having at least one panel and a neck portion connected to the at least one panel. The neck portion is operatively connected to the diffuser. The frontal air bag system further includes a trim molding covering the frontal air bag and adapted to be mounted to the pillar. The frontal air bag is inflated by the inflator via the diffuser to extend downward and sideways in front of an occupant seated in the vehicle and the trim molding is displaced during deployment of the frontal air bag.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the

obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (CCPA 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 20. Specifically, Sutherland ‘355 merely discloses a vehicle occupant safety apparatus having an air bag module or portions thereof including the inflators mounted near the front of the vehicle on or near the A-pillar or at another location on the vehicle. . In Sutherland ‘355, the air bags are side curtain air bags and headliner air bags and not frontal air bags as incorrectly stated by the Examiner. In addition, Sutherland ‘355 lacks a trim molding covering a frontal air bag and mounted to a pillar, which is displaced during deployment of the frontal air bag. Suyama et al. ‘497 merely discloses a method for developing an air bag for a vehicle in which an air bag is stored in a seat back having a first air bag inflated upwardly along a side door and a second air bag coupled to the first air bag inflated upwardly along a rear surface

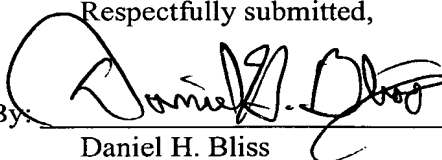
of an instrument panel. In Suyama et. al. '497, the air bags appear to be an extension of a side air bag, which may be deployed from the roof, probably above the window of the vehicle. Suyama et al. '497 also lacks a trim molding covering a frontal air bag and mounted to a pillar, which is displaced during deployment of the frontal air bag. Yamada et al. '937 merely discloses an air bag device having a front pillar mounting portion of an air bag fixed to a vehicle inner side portion of a front pillar and a roof side rail mounting portion of the air bag body fixed to a vehicle inner side portion of a roof side rail. In Yamada et al. '937, the air bag is a side curtain air bag and does not teach how to deploy a frontal air bag from the A-pillar. Yamada et al. '937 lacks a trim molding covering a frontal air bag and mounted to a pillar, which is displaced during deployment of the frontal air bag. Wipasuramonton et al. '909 merely discloses a vehicle safety apparatus having an air bag with a neck portion and a body portion. In Wipasuramonton et al. '909, the air bag is a side air bag. Wipasuramonton et al. '909 lacks a trim molding covering a frontal air bag and mounted to a pillar or a frontal air bag to deploy downward and sideways in front of an occupant seated in the vehicle when inflated. The references, if combinable, fail to teach or suggest the combination of a frontal air bag system including a frontal air bag having a neck portion operatively connected to an inflator and mounted solely to a pillar of a vehicle, a trim molding covering the frontal air bag and mounted to the pillar, and wherein the frontal air bag is inflated by the inflator via a diffuser to extend downward and sideways in front of an occupant seated in the vehicle when inflated and the trim molding is displaced during deployment of the frontal air bag as claimed by Applicants. The claimed combination is novel and unobvious because the neck portion of the frontal air bag allows deployment of the main portion of the bag in front of the occupant. The combined references still do not teach how to deploy a frontal air bag from the A-pillar. Instead, the Examiner has selected isolated features

from four different references based solely on our own teaching and not based on any teaching in the references. Therefore, it is respectfully submitted that claim 20 is allowable over the rejection under 35 U.S.C. § 103.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis which is supportive of his position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968)), the rejection of claims 12 through 14 and 16 through 20 is improper. Therefore, it is respectfully submitted that claims 12 through 14 and 16 through 20 are allowable over the rejections under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

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APPENDIX A**VERSION OF THE CLAIMS WITH MARKINGS TO SHOW THE CHANGES**

Please substitute amended claims 12, 19, and 20 as follows for the pending claims with the same number:

12. (TWICE AMENDED) A frontal air bag system for a vehicle comprising:
an inflator adapted to be mounted to vehicle structure;
a diffuser connected to said inflator and [extending] adapted to extend along a
pillar of the vehicle;

[an] a frontal air bag operatively connected to [either one of] said diffuser [and
inflator] and adapted to be mounted solely to the pillar; and

a trim molding covering said frontal air bag and adapted to be mounted to the
pillar, wherein said frontal air bag is inflated by said inflator via said diffuser to extend
downward and sideways in front of an occupant seated in the vehicle and said trim molding is
displaced during deployment of said frontal air bag.

19. (AMENDED) A frontal air bag system as set forth in claim 18 wherein
said neck portion is operatively connected to [either one of] said diffuser [and said inflator].

20. (TWICE AMENDED) A frontal air bag system for a vehicle comprising:
an inflator adapted to be remotely mounted to vehicle structure;

a diffuser adapted to be connected to said inflator and [extending] adapted to extend along a pillar of the vehicle;

[an] a frontal air bag adapted to be mounted solely to the pillar and having at least one panel and a neck portion connected to said at least one panel, said neck portion being operatively connected to said diffuser[, said air bag being mounted to the pillar]; and

a trim molding covering said frontal air bag and adapted to be mounted to the pillar, wherein said frontal air bag is inflated by said inflator via said diffuser to extend downward and sideways in front of an occupant seated in the vehicle and said trim molding is displaced during deployment of said frontal air bag.